

Psychological Behaviorism and Behaviorizing Psychology

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Paradigmatic or psychological behaviorism (PB), in a four-decade history of development, has been shaped by its goal, the establishment of a behaviorism that can also serve as *the* approach in psychology (Watson's original goal). In the process, PB has become a new generation of behaviorism with abundant heuristic avenues for development in theory, philosophy, methodology, and research. Psychology has resources, purview and problem areas, and nascent developments of many kinds, gathered in chaotic diversity, needing unification (and other things) that cognitivism cannot provide. Behaviorism can, within PB's multilevel framework for connecting and advancing both psychology and behaviorism.

Key words: psychological behaviorism, multilevel framework theory, three-function learning, basic behavioral repertoires, cumulative-hierarchical learning, behaviorizing psychology, unified positivism

Many behavior analysts have heard of paradigmatic behaviorism (or psychological behaviorism, see Tryon, 1990), PB for short. But many know very little about it, justified by views that PB differs from (Ulman, 1990) and does not differ from (Plaud, 1992) Skinner's radical behaviorism (RB). PB, like all behaviorisms, values any work based on conditioning principles. PB has been part of behavior analysis (BA), having contributed fundamentally to it, beginning very early, and having drawn upon it.

However, a behaviorism (like Skinner's) is a broad framework that includes a philosophy of science for the study of behavior, a methodology, theory, and characteristic problems, directions of research, empirical findings, as well as an agenda for development. Although all the behaviorisms share many things, they differ on other important things in these categories, as do PB and RB. PB is intended as a third-generation behaviorism, for use as a general framework, as are the behaviorisms of Hull (1943), Tolman (1932) and, especially, Skinner (1938, 1953, 1957, 1959). The present paper describes some of PB's characteristics, so behavior analysts can see that the framework is different from RB and provides various new directions for behaviorism's development.

UNIFIED POSITIVISM

To begin, PB's philosophy of science, which is called unified positivism (see Staats, 1983, 1991b), states that the extent of the unification of a science is a fundamental dimension of its advancement. Early in a science there is chaotic diversity, endless disagreement, mutual derogation, and the failure to advance past basic arguments, producing many disadvantageous by-products. Psychology, as a *modern disunified science*, has a babble of different theories, research studies, research problems, methods, principles, schismatic issues, philosophies, and concepts.¹ As a consequence, psychology is devalued in the philosophy of science as a "would-be [science] discipline" (Toulmin, 1972, p. 382).

EFFORTS TOWARD UNIFIED THEORY IN PSYCHOLOGY

"The aim of scientific explanation throughout the ages has been *unification*," that is, "the comprehending of a maximum of facts and regularities in terms of a minimum of theoretical concepts and assumptions" (Feigl, 1970, p. 12). Although the philosophy of science lauds unified theory, it does not study what needs to be known, that is, *how* dis-

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¹ Such dissension also existed among the second-generation behaviorists (e.g., Tolman, Hull, and Skinner) and continues today with separations among behavioral approaches and between organizations such as ABA and AABT.

unified sciences generally advance from disunity to unity.

Cognitive Psychology

Psychology's attempts at unification reflect the absence of the needed guide. Cognitivism may be used as an example. Cognitivism is a loose conceptual framework, drawn from the common language. It includes a host of psychological concepts whose common feature is the inference of internal processes that allegedly determine human behavioral phenomena. This mentalistic framework has been deployed in all of psychology's fields. I have described cognitivism as "a conglomeration of many unarticulated knowledge elements . . . [having] the same tremendous needs for unification that psychology in general has" (Staats, 1991b, p. 908). The central point here is that although cognitivism is not a unified theory, many psychologists think that it is and that it can unify psychology (see Baars, 1984). This belief exists partly because no other approach, including radical behaviorism, has shown the way.

Traditional Grand Theories: Part-to-Whole-Rejectionism Theory Construction

The various grand theorists in psychology did not understand psychology's special problems of disunity, and this lack of understanding limited their ability to construct unified theories. Traditionally, grand theorists have been specialists in a particular area of psychology. They extrapolated the theory formed in that partial study to all behavior, largely by conjectural examples, to suggest that they had a very general theory. Freud studied the verbalizations of neurotic patients in psychoanalysis. Piaget (Piaget & Kamil, 1978) based his grand theory on the developmental study of children's responses to certain problems. This method of theory construction (Staats, 1983) is actually the antithesis of unified theory. Because it does not study the rest of psychology (such as behaviorism) and does not propose a program to do so, the method is actually rejectionistic, and may

thus be termed the part-to-whole-rejectionism method.

Behaviorism and Unification

Watson aimed at unification, but not unification with psychology. Watson rejected psychology's concepts (mentalism), methods (introspection), and philosophy (dualism). With revolutionary fervor, his aim was to bring down traditional psychology and replace it with behaviorism. Watson thus generally followed the part-to-whole-plus-rejectionism strategy and thereby set the stage for the uneasy relationship of behaviorism and psychology, which in effect prevented behaviorism from fulfilling its potential as the unifying approach of the science.

In the second generation of behaviorism, there were several different approaches. Tolman (1932) sought some unity with traditional psychology by making psychology's mentalism scientifically respectable through the creation of the intervening variable strategy of defining cognitive concepts by conditioning studies. He later admitted failure in trying to construct a grand theory (Tolman, 1959). Hull (1943) became enmeshed in constructing an axiomatic-mathematic theory, a focus that was an obstacle to constructing a grand unified theory. Others tried a strategy of eclectically combining psychoanalytic theory with Hull's theory (see Dollard & Miller, 1950), producing a nonheuristic incompatibility rather than a grand unified theory.

Skinner, in contrast, carried forth the tradition of radical behaviorism in attempting to establish a very general approach (see Skinner, 1953, 1957). His work, which constitutes a model, includes almost no use of or reference to psychology's work. Both Watson and Skinner, as well as other behaviorists, made an important contribution by exposing the errors in mentalism and introspective methods. Partly because of this success, it became customary for many behaviorists to exclude psychology developments, without systematic consideration, for a variety of reasons: be-

cause the developments employ mentalistic concepts, do not use a behaviorally accepted methodology, and the like. There is a strong position, also, that it is simply more productive to work on something developed in RB than in psychology, so it is unnecessary to study psychology. The strategy is to develop a science of behavior from *within*, treating complex phenomena only when indigenous developments become available. Fraley and Vargas's (1986) behaviorology codifies this tradition and its implications, suggesting that behaviorism should separate from psychology.

In these ways, the behaviorisms of the second generation also used the part-to-whole-rejectionism strategy.

THE BEHAVIORIZING PSYCHOLOGY STRATEGY

Overlooked in this strategy is that behaviorists have always made productive conceptual analyses of findings that originated in traditional psychology, as Watson (1930) made analyses of fear, talking, and thinking. Skinner continued this tradition in his *Science and human behavior* (1953) by treating such things as personality, psychotherapy, and thinking—as did others (Hull, 1930). Mostly these analyses were done to show psychology's weakness. No one abstracted the important and general principle involved, namely, that traditional psychology has incipiently isolated phenomena that with behavioral analyses can be valuable to behaviorism as well as psychology. Quite opposite to the strategy of working from within, this principle calls for the systematic study of psychology's fields. No such program was suggested.

In part because it is a third-generation behaviorism, one of PB's beginning features was making behavior analyses of behavioral phenomena whose study psychology had already begun. To be behavioral, several things were necessary. Psychology's mentalistic conceptions had to be rejected. The limitations of the traditional observations had to be realized—for example, that the environmental causes of the behaviors were little

considered. Each phenomenon needed to be analyzed as behavior, including how that behavior was learned, in very specific terms, in order to provide implications for empirical study of a strictly behavioral nature.

With such strictures, the first works of PB constituted behavioral analyses of phenomena first studied in psychology. For example, an early PB work accepted cognitive studies of human problem solving as an important phenomenon (see Staats, 1956). The analysis was that human problem solving involves the problem-solving objects eliciting (or controlling) labeling verbal responses, which then elicit learned chains of verbal responses, which in turn elicit the problem-solving behaviors (Staats, 1963b). This treatment (see also Staats, 1963a) anticipated the interest in rule-governed behavior (Skinner, 1966) and is part of the PB analysis of how verbal behavior affects other behavior (see also Staats, 1975; Burns & Staats, 1992). As another example, traditional psychology treats meaning in language and communication mentalistically. PB's behavior analysis treated the phenomena involved as classically conditioned responses (see Staats & Staats, 1957, 1958; Staats, Staats, & Crawford, 1962). A number of studies have used PB's analysis and language conditioning method to change behavior (e.g., Berkowitz & Knurek, 1969; Early, 1968; Hekmat & Vanian, 1971; Zanna, Kiesler, & Pilkonis, 1970). PB very early made behavior analyses of purpose, grammatical rules, the self-concept, interests, intelligence, psychopathologies (including developmental disorders), values, communication, originality, self-determination, and many other phenomena treated in psychology (Staats, 1963b).

In addition to guiding PB research, some of the analyses were followed by the research of others. As an example, a PB analysis (see Staats, 1963b, pp. 177–178) of the mentalistic notion of grammatical rules of pluralization explicated the behavioral mechanisms involved and how they are learned. A series of studies conducted by Guess (1969) and Sailor (1971) and their associates involved

training retarded children to pluralize according to "rule" as specified in the PB analysis. The behavioral analysis of other language phenomena treated by linguists (see Staats, 1971b) also gave rise to study in that field (see Rondal, 1984). As another example, PB very early behaviorally analyzed a traditional description of the symptom of a schizophrenic patient. The analysis indicated how the psychotic symptom was learned and maintained through therapists' reinforcement, and how it could be changed by extinction and the reinforcement of incompatible behavior (Staats, 1957). Two years later, Ayllon and Michael (1959) demonstrated those principles by manipulating reinforcement variables with psychotic patients. The principles and methods became basic in behavior modification. PB's behavior analysis of the economic principle of supply and demand (Staats, 1963b, p. 309) provides another example. This analysis was based on PB's work introducing the token-reinforcer system as analogous to money (Staats, 1963b, pp. 442-443). Begun in 1958, with the use of the system in treating developmental reading disorders in a public school (see also Staats, Finley, Minke, & Wolf, 1964; Staats, Staats, Schutz, & Wolf, 1962), the treatment combined behavior analysis with traditional reading materials adapted for the behavioral methods (see Staats & Butterfield, 1965). This development was a foundation for the study of developmental disorders by behavior analysts (see O'Leary & Drabman, 1971). In addition to these examples, PB made many other theoretical and empirical behavior analyses of phenomena originally studied in psychology (see, e.g., Staats, 1963b, 1964, 1965, 1968a, 1968b, 1971a, 1971b, 1975; Staats & Burns, 1981, 1982; Staats et al., 1964; Staats, Gross, Guay, & Carlson, 1973; Staats & Hammond, 1972; Staats & Staats, 1958).

There are also many well-known examples, in the various behaviorisms, of behaviorally analyzing psychology materials, including classic problems of psychophysics using nonhuman animal subjects, the study of choice as an operant, the study of creativity, behavioral eco-

nomics, and programmed instruction. Unlike other behaviorisms, PB abstracts what is involved, and establishes the basis for a different relationship of behaviorism and psychology, along with a new program for conducting interrelated study—called "behaviorizing psychology"—as an important part of constructing a general, unified science (Staats, 1992a).

UNIFIED POSITIVISM TENETS AND THE BEHAVIORIZING PROGRAM

These examples have been given to illustrate that psychology has made preliminary studies of important behavioral phenomena, albeit under the aegis of a mentalistic conception that entails various weaknesses. Lacking analysis of its phenomena (behaviors), and how those behaviors are learned, traditional psychology has no way of explaining those phenomena and, thus, of establishing the relationships of the phenomena to each other. For these reasons, psychology's findings remain disparate and unrelated; the result is chaotic disunification.

Behaviorism, however, has the methodological advantage of behavior analysis to indicate learning conditions. Such analysis yields the possibility of control, not just prediction. In addition, however, it is important to realize what behavior analyses of psychological phenomena can contribute in terms of unification. Behavior principles are part of a unified set. Whatever is analyzed in terms of those principles is placed into a unified framework. For example, when attitudes, interests, values, preferences, and choice behavior are analyzed in terms of conditioning principles (see Staats, 1963b; Staats & Burns, 1982; Staats et al., 1973; Staats & Staats, 1958), the phenomena are drawn into a unified theory. Such behavioral analyses of psychological phenomena, moreover, are heuristic and suggest new paths of study, as these and other works show. Psychology needs behavioral analyses of its phenomena and systematization of these analyses into a unified theory.

Let me at this point introduce several

tenets of unified positivism's methodology of theory construction. One is that an approach that aims to be general to psychology must *consider* all the knowledge elements produced by the discipline (Staats, 1992a). This may be called the principle of inclusion. And the fact that there is error in an aspect of some work does not mean that all aspects are in error. For example, although the concept of intelligence may be mentalistic, that does not mean that intelligence tests or the methods of test construction involved are worthless. Rejection of intelligence tests and test-construction methods requires specific analysis.

This leads to a corollary tenet, the principle of due process. That is, not every element of knowledge in any science is true or useful with respect to constructing a general theory. The task, thus, is inclusion of those elements that are true and useful and rejection of those that are not. Due process evaluation is necessary before an element of knowledge is rejected (or ignored), just as it is when the element is accepted. Frequently, rejection is much less systematic than acceptance. Many cognitivists, for example, reject (or ignore) behavioristic works very generally, assuming because they are behavioristic they "must be" atomistic, mechanistic, antipsychological, and simplistic. On our side, many behaviorists reject (or ignore) anything that smacks of mentalism or does not employ behavioral methods, or that is part of the vast (and denigrated) literature of psychology. In both cases, this is not good scientific practice, and it prevents construction of a comprehensive approach. PB thus calls for "systematic rejection," a corollary of due process. Not everything in psychology—problems, methods, theories, philosophies, findings, whatever—will turn out to deserve a scientific investment. Science demands separating the "wheat" from the "chaff," and behaviorism must accept this responsibility and show its wares in doing so.

Unified positivism states that unification in science is valuable, as basic to parsimony as it is to deep study of phenomena. The goal of unification underlies the PB methodology of retaining the

traditional name of the phenomenon if it was first studied in psychology—as in the PB analyses of attitudes, intelligence, reading, personality, and the like. There is an important difference here, in method as well as in theory, between PB and Skinner's RB, the latter not generally retaining psychology's names. For example, Skinner used terms like *texting* instead of *reading* (Skinner, 1957) and *abstraction* instead of *concept formation* (Skinner, 1953), in a manner consistent with his epistemology (see Moore, 1985). PB's analyses of psychological phenomena do not have the goal of showing how wrong psychology is, but of performing a unification. Some behavior analysts (see Ulman, 1990) have confused PB's use of traditional terms with the use of intervening variables or mentalistic concepts. But PB's terms are behaviorally defined, strictly, closely, specifically (Staats, 1992b)—its methodology more stringent than in some RB and BA works.

FRAMEWORK THEORY AND PB

The PB goal is that of constructing a behaviorism that will be general to psychology. But there are too many unrelated knowledge elements in psychology to be encompassed by any one theorist. This was the complexity that forced the classic theorists—behavioral or not—to restrict themselves to a small part of the science, to cut the task down to size. But that avoids rather than confronts the task.

The PB theory-construction methodology—called *framework theory*—has been developed to make the task manageable (see Staats, 1981, 1988). This is done, not by rejection without due process, but by dealing with psychology's complexity *progressively*, not all at once. The framework theory methodology involves constructing a theoretical skeleton, not a completed theory. This is done for each of the major fields. Features (concepts, principles, findings) in each case are included, but not all of them. Rather, the elements are sampled in a systematic way, first dealing with some of the centrally significant elements in each field for the purpose of constructing a unified theory of the field. The aim is

to demonstrate the framework theory's relevance for the field and that the theory should be extended more broadly (and deeply), ultimately to confront all the elements in each field. The grand framework theory, then, is composed of the several field theories along with the conception that overarches the fields (see Staats, 1963b, 1975, 1988).

Framework theory is thus different from traditional theory, which is centered in a specialized field—a major reason PB as a theory has been misunderstood. The framework theory, as is the case with psychology's grand theories, is an incomplete theory, but by systematic design. Everything in the framework theory must be made consistent with the basic principles. But those principles are elaborated through use of materials in the fields treated. The framework theory is a true theory, operationally connected to the phenomena studied, and the theory in each field must show its heuristic properties for generating theory, method, and findings.

Unlike other theories, PB assumes the task of indicating the relationships of the major fields of psychology. Traditionally, the implicit assumption has been that the principles in the specialized field will suffice to explain all of behavior. For example, in RB there is the basic theory of conditioning principles, and all human behaviors are to be explained by the basic theory. This is a two-level theory program, which places all the other fields on the same level, as those to be explained. Such theory does not recognize that some of the fields of psychology may be basic to others.

PB takes the position that, although the conditioning principles are basic, these principles have to be developed by adding concepts and principles, through the several levels (fields) of psychology. PB also takes the position that there is a rough dimension, from basic to advanced, that goes from the basic learning theory field (level) through human learning, developmental, personality and personality measurement, social, abnormal, clinical, educational, and occupational psychology levels. Thus, the major fields in psy-

chology are seen to constitute connected levels of study, each having principles, concepts, methods, and findings to add to the overarching theory. A field like personality and measurement, as an example, has more basic fields to which it must be related, like learning, as well as more advanced fields, like abnormal psychology, to which *it* is basic. Moreover, PB recognizes that more "advanced" levels contribute elements of value to more basic levels—that there is a bidirectional, not reductionistic, relationship (see Staats, 1975, chap. 16, 1983).

The theory construction task, it should be indicated, is complex. Each field is a very complex body of knowledge, and it is necessary in each case to pick and choose and reconstitute elements, as well as to generate necessary elements, by which to construct a framework theory of the field. Moreover, this framework theory must connect to the framework theories of the adjacent fields and thus become part of the whole. Let me also add that there may be theories within each level. Thus, the PB human learning level contains a theory of emotion, of language, and so on. The PB abnormal psychology level, as another example, contains theories of the different behavior disorders.

PB, the overarching theory, is composed of the level theories, each of which includes sublevel theories within it. For example, there are full theories of emotion, language, intelligence, attitudes, interests, values, reading, writing, and number concept learning, depression, the anxiety disorders, dyslexia, and so on. Some of the treatments are more specific and may be considered analyses or mini-theories—for example, analyses of phenomena such as walking, toilet training, communication, concepts, problem solving, the self-concept, number concept learning, and so on. These various theories and analyses (see Staats, 1963b, 1968a, 1968b, 1971a, 1975), along with their empirical support, are woven together as part of the theory-construction task to constitute the overarching framework theory (see Staats, 1975). Although the framework theory is a skeleton, it

must contain full, heuristic theories (with empirical-methodological development) at selected spots in its purview. There are many elements in the PB framework, of varying sizes and degrees of completion. There are also many empty spaces, of various sizes, that need to be filled in by theoretical, methodological, and empirical work. The framework theory may begin with one person, but the large and complex task demands the contributions of many—theoreticians, methodologists, basic and applied researchers, and philosophers.

It is not possible here to reduce the content of PB and its works to an article. However, its range of interests—and the outline of its structure—is summarized in Table 1. The table indicates the levels and their relationships, in a general way, and also indicates some of the specific content of interests of the levels as well as some of PB's concepts and principles for dealing with those interests.

CHARACTERIZATION OF PSYCHOLOGICAL BEHAVIORISM

The areas addressed by the multilevel theory are presented in the left column of the table. The right column characterizes some of the principles, concepts, and purposes of each level. In pursuit of a characterization of PB, a few words will be said about several of its levels, in a manner intended to illustrate the PB framework theory as well as to indicate differences from Skinner's radical behaviorism.

The Basic Principles Level

The second-generation behaviorisms arose in the context of the nonhuman animal research stemming from the two traditions begun by Pavlov and Thorndike. Each had the task of systematizing (constructing theories of) the many studies of conditioning, of extending their systems through additional research, and of advancing behaviorism conceptually, methodologically, and philosophically. During the period when these behaviorisms were formulated, there was not the

rich context of human experimentation that developed later.

PB is a third-generation behaviorism in several senses. It had the advantage of the developments of the first two generations as a context. As a consequence, it could focus on human behavior, and it did so, helping to supply the richer context for today's interests. With its multilevel aims, even PB's basic theory of behavior principles was constructed as a framework theory, which was important. As a framework theory, it was pared down to essentials, constructed to serve as the foundation for dealing generally with human behavior, and dispensing with the complications in the specialized animal behavior theories (see Hull's, 1943, and Tolman's, 1932, focus on intervening variables, and Ferster & Skinner's, 1957, focus on reinforcement schedules).

Although in framework form, PB's basic theory establishes a fundamental position in dealing with the relationship of the two traditions of classical conditioning and operant conditioning—a central problem in the second generation. Is there one type of animal learning or two? Hull (1943) and Guthrie (1935) recognized only one conditioning, the former considering it to occur through reinforcement and the latter through contiguity. Skinner's (1938) theoretical formulation, an important contribution, posited two types of response and two types of conditioning. Although Hull was a one-factor theorist, his concept of the fractional anticipatory goal response underlay the development of another "two-factor" approach that posited a relationship between classical and instrumental conditioning (see Doob, 1947; May, 1948; Miller, 1948; Mowrer, 1947; Osgood, 1953; Rescorla & Solomon, 1967; Solomon & Wynne, 1954). Animals in a shuttle box learned to escape electric shock. The animals then displayed the response to a sound stimulus (CS) that had previously been paired with shock, suggesting that the shuttle escape response had been learned to the fear response elicited by the shock. However, measures aimed to prevent fear responding did not prevent the CS from eliciting (controlling)

TABLE 1

The Multilevel Theory of Paradigmatic Behaviorism

Levels (and content-area examples)	Principles, concepts, and phenomena
1. Biological mechanisms of learning <ul style="list-style-type: none"> a. Sensory psychology b. Brain and central nervous system c. Response systems d. Evolution of learning mechanisms 	<p>The neurophysiology of learning: The central purpose of this level of theory is to unify the biological study of organisms with their behavioral study, making the two mutually heuristic and removing the schism that separates so much of psychology along "nature-nurture" lines. The basic bridge relates the biological concepts of sensory, response, and association organs with the behavioral concepts of stimuli, responses, and learning.</p>
2. Basic learning theory <ul style="list-style-type: none"> a. Elementary study: conditioning principles b. Generalizing study: types of stimuli, responses, and species to which principles apply c. Motivation principles 	<p>Three-function learning theory: Stimuli that elicit an emotional response will, because of this, be reinforcing stimuli. Both functions (emotion elicitation and reinforcement) are transferred in classical conditioning. Moreover, organisms generally learn to approach positive emotional (and reinforcing) stimuli and to avoid negative emotional (and punishing) stimuli. As a consequence, emotional stimuli direct (are incentives for) behavior. This learning theory makes the study of the various forms of the classical conditioning of emotions a central concern in explaining behavior, giving new directions for animal and human research. Motivation operations affect the stimulus functions.</p>
3. Human learning principles <ul style="list-style-type: none"> a. Complex stimulus-response learning (e.g., response sequences, response hierarchies, and multiple controlling stimuli) b. Response repertoires c. Cumulative-hierarchical learning principles and others unique to humans 	<p>Complex stimulus-response mechanisms, internal responses and stimuli, basic behavioral repertoires, and cumulative-hierarchical learning: The basic learning theory states the behavioral principles in elemental simplicity. Human skills and general characteristics are composed of exceedingly complex combinations of the basic principles. The field of human learning must study such complex combinations and the manner in which complex, interrelated sets of responses (repertoires) are learned. Centrally, complex human skills are complex repertoires that can be acquired only if the individual has already learned necessary prior repertoires (e.g., reading can be learned only after prior language repertoires are learned). These principles of cumulative-hierarchical learning require systematic, basic study.</p>
4. Personality <ul style="list-style-type: none"> a. Personality concept b. The three personality systems: language-cognitive, emotional-motivational, and sensory-motor c. Personality and environment interaction 	<p>Personality is composed of basic behavioral repertoires: From birth the child begins to learn complex systems of "skills" in the three general areas. These are learned in advancing complexity. There are sub-repertoires that additional learning combines (as language is composed of separately learned sub-repertoires), and there are repertoires that are basic to the later learning of more advanced repertoires (as algebra skills rest on the prior learning of arithmetic operations). The three repertoires constitute personality. In interaction with the environment, they determine the individual's experience, learning, and behavior. This theory makes many conceptual unifications possible in psychology and opens many new avenues of research.</p>
5. Child development <ul style="list-style-type: none"> a. Language-cognitive development b. Sensory-motor development, including modeling skills 	<p>Cumulative-hierarchical learning and development: Traditional developmental psychologists have studied many aspects of the child's development. But there has been little analysis of this development in terms</p>

TABLE 1

Continued

Levels (and content-area examples)	Principles, concepts, and phenomena
c. Emotional-motivational development	of complex learning. Paradigmatic behaviorism calls for this systematic analysis, provides exemplary theoretical-empirical analyses of language-cognitive, emotional-motivational, and sensory-motor development through learning, and calls for various new types of theory and research.
6. The social-personality level of study	Interactions among individuals and groups: The three-function learning principles are basic. Attitudes are emotional responses to social stimuli. Thus, such stimuli have reinforcing and incentive (directive) power, depending on their emotion elicitation. Social phenomena such as group cohesion, attraction, persuasion, prejudice, and intergroup relations function by these principles. In addition to the emotional response individuals have for each other, the language-cognitive and sensory-motor personality repertoires of interactors are determinants of their social behavior. Group character and social role phenomena also operate according to the basic principles and personality principles.
a. Attitudes and social cognition	
b. Interpersonal relations and group processes	
c. Personality processes, individual and group differences, and cross-cultural psychology	
7. Personality measurement	Unifying theory for a behavioral psychometrics: The personality theory provides a conceptual framework within which the personality concepts, methods, and instruments of the traditional field of psychometrics can be analyzed in a manner compatible with behaviorism. Personality tests measure aspects of the basic behavioral repertoires; this accounts for their ability to predict behavior. For example, intelligence tests heavily measure language repertoires and sensory-motor skills, and interest tests measure aspects of the emotional-motivational repertoire. This theory explains why verbal tests provide knowledge of non-verbal behavior and emotional states—because the three personality repertoires are interconnected and covary—helping to resolve the behaviorism/psychometrics schism. The theory is heuristic for basic research and test construction.
a. Theory relating behavior principles, the concept of personality, and personality measurement and behavioral assessment	
b. Application of theory to tests and their uses (clinical, etc.)	
c. Applications to test construction and assessment: Paradigmatic behavioral assessment	
8. Abnormal psychology	Paradigmatic behaviorism's theory of abnormal behavior: The individual learns personality repertoires that interact with the life situation in determining behavior. The personality repertoires may be rich and adaptive or sparse and inappropriate. In the latter case, the individual's behavior will be abnormal in certain situations. Life situations that are not normal may also produce abnormal behavior. Biological conditions can directly affect the personality repertoires and produce abnormal behavior. Using this theory, a unified analysis can be made of the various diagnostic categories. For example, schizophrenia involves disturbances especially in the language-cognitive and emotional-motivational repertoires, phobias involve only a part of the latter repertoire, and the various subtypes of depression differ in the repertoires, life events, or biological conditions involved.
a. The personality repertoires as basic determinants of abnormal behavior, in the PB sense	
b. Diagnostic categories as deficient and inappropriate personality repertoires	
c. Personality and environment interaction in abnormal behavior	
9. Clinical psychology	Paradigmatic behavior therapy: The various levels of paradigmatic behaviorism are applied to clinical
a. Behavior modification of simple problems,	

TABLE 1

Continued

Levels (and content-area examples)	Principles, concepts, and phenomena
behavior therapy, and the psychodynamics/conditioning schism b. Paradigmatic behavior therapy c. Personality change and personality measurement d. Language-cognitive methods of treatment	problems involving various methods of treatment. The basic learning principles can be employed to directly treat simple problems. Sometimes personality or social-environmental problems are involved, and assessment instruments and personality measurement may be needed, along with complex social-environmental changes and learning programs. The language-cognitive level of theory indicates how behavior and personality can be changed by various verbal methods of therapy. Paradigmatic behavior therapy has been in development since the 1950s, has yielded seminal contributions to behavior therapy, and now projects new avenues for development.
10. Educational psychology a. Paradigmatic behaviorism's theories of school subjects b. Intelligence, learning readiness, retardation, and learning disability c. Treatment of problems of school learning	Education and paradigmatic behaviorism: Reading (like writing and number-concept skills) is explicated in theory and research, is considered in specific terms as complex language-cognitive repertoires, is considered learned in a cumulative-hierarchical manner, and is considered based on earlier acquired language repertoires. Theory and research yield a conception of intelligence composed of learned and trainable repertoires. Learning readiness, retardation, and learning disability, which are typically inferred to result from biological conditions, can be better explained within a unified learning-biological theory that stipulates the repertoires involved, with directives for problem resolution. The approach provides new ways for treating and researching educational problems.
11. Organizational psychology a. Personnel selection b. Motivation in organizational settings c. Behavioral analysis of jobs d. Organizational conditions and problems	Applying paradigmatic behaviorism to tasks in organizations: Paradigmatic behaviorism's various levels of theory provide a conceptual framework for analysis of organizations and their characteristics and problems. For example, the emotional-motivational theory specifies that individuals and institutions have "emotional-motivational systems" and that individual-institutional adjustment depends on harmony between the two. Because of the personality and psychological measurement levels of theory, the approach can link more harmoniously with traditional knowledge in such areas as personnel selection, job analysis, and job training.

the operant (Rescorla & Solomon, 1967). Accepting this as negative evidence for fear mediation, Rescorla and Solomon had no conviction in raising the possibility that the effect "is mediated by a common central state, . . . subject to the laws of Pavlovian conditioning" (1967, p. 178).

Although valuable, this research area died because of its deficits. One was that the central concept was both poorly defined and left as an intervening variable.

And the experimental work and its conceptualization were divided and inadequate. Two-process work focused on aversive stimuli, and the findings were not related to appetitive animal phenomena (such as authoshaping, Brown & Jenkins, 1968; and transfer of control, Trapold & Winokur, 1967). The Pavlovian-operant relation needed to be stipulated clearly in terms of the several functions stimuli can have, with the emotional response concept specified, as well as its positive-

negative nature, in the context of human research dealing with significant types of human behavior, within a general conception indicating the importance of emotion for human behavior. Without such a framework, research stopped.

Skinner's (1975) approach—emphasizing that emotional responses (and classical conditioning) are separate from operant responses (and operant conditioning)—continued as the dominant basic theory for radical (and most applied) behaviorists. Emotions do not determine behavior; rather, they are only collateral processes. Operant behavior is the important thing. This conception, its methods, and its empirical work, however, do not provide impetus or direction for focally studying classical conditioning, how it occurs in uniquely human ways, or how emotions affect behavior.

There is a basic difference here between PB and RB. PB, with its focus on human behavior, considers emotional responding central in understanding all human behavior. In PB's "three-function learning theory," classical conditioning of emotion is of equal importance with operant conditioning in the determination of behavior. To summarize, stimuli are considered to have three major interrelated behavioral functions; a stimulus can elicit an emotional response, it can serve as a reinforcing stimulus, or it can serve to direct (control) behavior (see Staats, 1970, 1975, 1991a). Centrally, the reinforcing function depends on the emotion-eliciting function, for unconditioned stimuli as well as conditioned stimuli. Thus, as the emotion-eliciting value of a stimulus is altered—through conditioning, or deprivation-satiation operations (in the positive case)—the reinforcing value of the stimulus changes.

Basic studies with human subjects have established PB's fundamental principles, using "human models" of study. For example, our ordinary language experience many times pairs food and food words. This should result in a "human preparation," in which food words are conditioned stimuli that elicit an emotional response. This "preparation" effect was shown in a study that presented food

words and nonfood words to subjects satiated on food or deprived of food (15 hr) and measured salivation to the words (Staats & Hammond, 1972). Deprivation increased salivation to food words. This study demonstrated the conditioned stimulus (CS) value of food words. In line with the expectations of PB's basic theory, research showed that food words function as stronger reinforcing stimuli (Harms & Staats, 1978) for food-deprived versus nondeprived subjects, as well as stronger emotion elicitors in classical conditioning (Staats, Minke, Martin, & Higa, 1972), and stronger directive (discriminative) stimuli for approach responding (Staats & Warren, 1974). The primary conditioning of negative emotional responses to words was shown (Staats, Staats, & Crawford, 1962), as well as how negative emotion-eliciting words, contingently presented, decrease operant responding (Finley & Staats, 1967).

With respect to the third (PS) function, emotion-eliciting stimuli control approach behavior (in the positive case) because in life the organism's approach behaviors to such stimuli result in reinforcement—repeatedly. For positive emotion-eliciting stimuli are also positive reinforcing stimuli. Conversely, organisms are also reinforced (negatively) when they escape from and avoid negative emotional stimuli. The emotion-behavior relationship is strongly learned, so any positive or negative emotion-eliciting stimulus controls a large class of approach or avoidance responses. Increasing a stimulus's emotional value increases its directive value. This is what accounts for the autoshaping and transfer of control phenomena (see Staats, 1975, chap. 4).

Motivation operations affect the three stimulus functions—deprivation of food increases the extent to which a learned food stimulus will serve as a ^CS (see Staats & Hammond, 1972), as an ^RS (see Harms & Staats, 1978), and as a ^PS (see Staats & Warren, 1974).² Understanding and controlling behavior (especially of humans) requires knowledge not only of operant principles, but also of classical conditioning principles, the interaction

between them, and how motivation operations affect these functions.

The PB position of classical/operant interaction² is based on a human classical conditioning methodology different from experimental analysis of behavior (EAB).³ The general methodological position of PB is to employ various sources of evidence in systematizing its concepts and principles, including study of the biological mechanisms involved in behavior (see Staats, 1963b, 1975, chap. 4 and 15, 1988; Staats & Eifert, 1990; Staats & Fernandez-Ballesteros, 1987). Thus, the three-function concept of emotion includes the evidence provided by brain-stimulation procedures that produce reinforcement (Olds & Milner, 1954) and emotional responding (see Kolb & Wishaw, 1984). Hayes (1993) has labeled PB as mechanistic. However, this view results from the contrast between PB's specification of its concepts (with stimulus and response analyses) and the RB practice of leaving its "private event" concepts unspecified (Staats, 1993b).

Hayes and Brownstein (1986) also question the use of behavior-behavior relations (a concept spelled out in Staats, 1975, pp. 65-72). In the PB view, there is a discrepancy between Hayes's methodological philosophy and his scientific practices. For example, Hayes and associates (see Hayes, Zettle, & Rosenfarb, 1989; Zettle & Hayes, 1982) introduce to BA the same concepts as those in the three-function learning theory (notwithstanding a basic incompatibility with Skinner's view of emotion). Zettle and

Hayes (1982, p. 81) state that words "elicit conditioned emotional responses" (which follows Skinner) and that words can elicit an emotional response that may alter one's capacity to "find particular events reinforcing or punishing," and that "a good commercial can literally make your mouth water" (Hayes et al., 1989, pp. 207-208) and affect the individual's behavior. On the one hand, Hayes and Brownstein (1986) criticize behavior-behavior study for leading away from the environmental causes that provide control, not just prediction. Yet the above analyses of Hayes and associates include description of how emotional responses affect behavior, without providing or invoking any evidence with respect to any of the concepts employed. In contrast, PB has produced principles and findings that provide prediction *and* control (see Berkowitz & Knurek, 1969; Early, 1968; Evans & Weiss, 1978; Hekmat, 1973, 1992; Hekmat & Vanian, 1971; Tryon & Briones, 1985). Behavior analysts are now becoming interested in the emotional response and its reinforcing and directive functions (see also Blakely & Schlinger, 1987; Schlinger & Blakely, 1987). PB has the evidence to support such interests, but EAB does not (see Augustson & Dougher, 1992, as a nascent effort).

We need to confront systematically the differences in methodology brought up by Hayes. The methodological arguments directed against Hullian theory or cognitive behaviorism have no relevance for evaluating PB. PB does not infer mental or cognitive events or structures or use the intervening-variable methodology. Any confrontation between PB and RB methodology should be specific and consider such things as the RB treatment of emotion and rule-governed behavior, as well as the private event, *augmenting* (Hayes et al., 1989), and the *establishing stimulus* (Michael, 1982). The latter concepts appear to have been introduced at least in part to deal with the classical conditioning/operant conditioning interaction and the effects of deprivation/satiation. As indicated, these are treated in PB in a manner that does not require the introduction of new concepts. I suggest that this yields a more consistent, par-

² Michael's (1982) "establishing operations" technology presents a later, less defined, less supported conceptualization for dealing with multiple functions of stimuli and the effects of motivation operations.

³ PB research methodology is to have the problem determine the method, rather than the reverse, thus using EAB methods, groups methods, as well as experimental-naturalistic methods and experimental-longitudinal methods of PB design (see Staats, Brewer, & Gross, 1970), and others. PB's original definition of behavioral analysis (Staats, 1963a, 1965) involved using multiple methods to complement one another, RB once was very different from PB in this respect but today is much less so, although marked differences remain, as in the respective philosophies of methodology.

simonious, and heuristic conceptualization for which evidence already exists.

Let me also add that PB's treatment of emotions is a good example of what is meant by behaviorizing psychology. As Skinner (1975) recognized, traditional psychology has mentalistically used the concept of emotion as a determinant of behavior. Mentalism aside, however, how emotional responding affects the individual's behavior involves general and important phenomena. When the phenomena are analyzed and researched in a PB framework, the mentalism is removed, yielding a heuristic structure for dealing with topics of interest to both behaviorism and psychology.

PB's learning theory has only been stated in summary form and thus needs specialized elaboration in the large field of animal behavior. This illustrates the framework theory-construction methodology. The framework theory at each of its levels is intended to serve two roles: (a) as a framework calling for specialized development in the particular field, and (b) as a part, to be joined with others, of the overarching general behaviorism.

Human Learning Theory

In our laboratory tradition the fundamental conditioning principles are established in the simplest situation possible—using simple stimuli, simple responses, and so on. Elementary, lawful relationships can thereby clearly be established. Human life situations, of course, are much more complex, involving constellations of stimuli and responses of different kinds, with complex interrelationships; this makes it difficult to see the action of fundamental principles. However, when such fundamental principles have been specified in animal study, there is then the task of working back in the other direction to show how those principles explain complex human events.

Although many cases of human behavior can be straightforwardly analyzed in terms of the elementary conditioning principles, other cases require additional principles. Later in this paper, I will describe an analysis of intelligence and per-

sonality that is completely behavioral but necessitates several levels of theory development beyond the elementary learning principles. Although the elementary principles of conditioning are necessary, they are not sufficient for treating many human behavior phenomena. Applied behaviorists, acquainted only with the principles of reinforcement, are limited in their ability to analyze many problems of human behavior, thus shortchanging the value of the behavioral approach.

The early work of PB focused on this human learning level involving the study of how the basic conditioning principles operate in complex combinations. Although the various behaviorists did not have a systematic program for this study as part of a multilevel theory development, they nevertheless did make first steps in the study of such things. For example, all the major behaviorisms (as well as PB) include principles of chains (sequences) of responses, response classes, response hierarchies, habit families, counterconditioning, conflict, word associations, successive approximation, abstraction, semantic generalization, response mediation and, more recently, transfer of control, autoshaping, stimulus equivalence, and rule-governed behavior.

In the PB scheme, these concepts and principles only begin the extensions of the fundamental principles; their operation must also be studied with human subjects, especially in the context of important types of behavior. PB began this development in the early 1950s. Conditioning principles were extended to the study of language behaviors (Staats, 1956, 1957; Staats & Staats, 1957), and included empirical research published the same year as Skinner's (1957) *Verbal Behavior*. This was followed in a developing program (see Staats, 1963b, 1968a, 1971a, 1971b, 1975; Staats & Burns, 1981, 1982; Staats & Butterfield, 1965; Staats et al., 1964). PB introduced the behavioral study of language development (learning) as well as language function (see Finley & Staats, 1967; Harms & Staats, 1978; Staats, 1963b, chap. 5; Staats & Hammond, 1972; Staats & Staats, 1958; Staats, Staats, & Crawford, 1962; Staats & War-

ren, 1974). PB has dealt with the functions of complex language in communication, problem solving, and response mediation generally, in ways that go beyond interests still in the early stages in behavior analysis, in areas like rule-governed behavior and stimulus equivalence (see Burns & Staats, 1992). PB thus has findings, methods, and theory to offer behavior analysis. Moreover, PB calls for additional research on how both emotional and behavior conditioning can take place, via language mechanisms, in uniquely human ways (see Herry, 1984; Staats & Staats, 1958). General study of how language processes involving classical (see Berkowitz & Knurek, 1969; Hekmat & Vanian, 1971) and operant conditioning (see Staats, 1963b, 1968a, 1968b, 1975) can affect behavior is needed.

One outgrowth of this work was the realization that we need systematic study of how humans learn repertoires, a concept that has been left with a common-sense definition. PB's research introduces the human learning principles of *cumulative-hierarchical learning*, which describe how learning one repertoire can provide the basis for learning another repertoire that in turn provides the basis for learning yet another repertoire (see Staats et al., 1970). Typically, all complex human performances—"skills," "abilities," or "talents"—involve such cumulative-hierarchical learning of sequentially acquired repertoires. If we want to understand skills and abilities, we must study those repertoires. New findings and principles are involved (see Staats et al., 1970; Staats & Burns, 1981). For example, there is a learning acceleration phenomenon produced by cumulative-hierarchical learning; thus, learning to read successive letters requires progressively fewer reinforced trials. Out of this study has come the central definition of the *basic behavioral repertoire* (BBR) as a repertoire that is necessary for later learning.

PB indicates that the human learning concepts and principles essentially add to the behaviorist's theory and are necessary for both research behaviorists and

practicing behaviorists. This development—empirical, methodological, and theoretical—projects a systematic field that opens broad vistas of research on topics presently sampled only adventitiously in an unrelated and incomplete manner. In the PB program, the human learning level concepts and principles (such as the concept of the BBR and the principles of cumulative-hierarchical learning) provide the basis for the more advanced levels of study. The next level—that of developmental psychology—derives in important part from these developments. It is not possible to consider developmental psychology here, and I will go on to personality theory, which is also based on the "bridging theory constructions" of cumulative-hierarchical learning principles and the basic behavioral repertoire concept.

Personality Theory

Traditional psychology very generally employs a concept of "personality" (or various analogous terms such as intelligence) as an internal process or structure that determines behavior. Watson rejected that mentalistic concept of determination, saying in essence that personality could only be conceived of as behavior itself. Behaviorism (including PB, see Staats, 1963b, chap. 2) has generally indicated the circularity of inferring personality *from* behavior and then "explaining" behavior by the concept. Much of the separation of behaviorism and traditional psychology comes from these antagonistic positions; for example, psychology gives psychometrics an important place, whereas behaviorism has not and thus has contributed little to this field. Psychology's rejection of behaviorism is in good part based on such divisions.

The PB goal has been to analyze (behaviorize) human behavioral phenomena of progressively greater complexity, rather than to study personality. These analyses, however, ended up providing a foundation for a concept of personality that was completely behavioral (and not circular), but that also fulfills traditional

psychology's concern with personality as a causal process. To illustrate, PB research studied how language is composed of conditioned behaviors, then how language categories are composed of repertoires of such behaviors, then how the language repertoires are learned, and finally how the language repertoires function as determinants of further learning and behavior. The language repertoires, for example, function in most types of school learning (e.g., reading and math learning; see Staats, 1968a), in the individual's performance (behavior) in problem solving (see Staats, 1956, 1963b), in reasoning and planning, in communication, and so on (Staats, 1963a, 1963b). It became increasingly clear in this analysis that individual differences in language accounted for individual differences in later behavior (and in learning and experience); this became a conceptual foundation by which to analyze the phenomena of personality and personality measurement in behavioral terms (see Staats, 1975, 1986a, 1993a).

In this the PB conception was that measured "personality traits" must actually sample the basic behavioral repertoires. This made analysis of the *item content* of psychological tests central, rather than taking total scores as measurements of a trait. To illustrate, items on the Stanford-Binet (Terman & Merrill, 1937) were analyzed in terms of the language BBRs (see Staats, 1963b, 1971a, 1975); there were items that measured the child's verbal-labeling repertoire, the verbal-motor repertoire, and so on. It was also found that training preschool children in such language repertoires led to increases in intelligence measures (see Staats, 1968a; Staats et al., 1970). A more general theory of intelligence was formulated (Staats, 1971a), and this provided the basis for new empirical analyses. One study trained children to read letters, write letters, and use numbers by employing token-reinforcer training procedures previously developed in PB to prepare deprived 4-year-old children for school. Acquisition of these BBRs *produced* increased intelligence test measures in explicitly predictable ways that

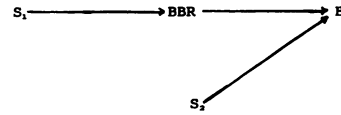


Figure 1. S_1 stands for the original environment, the environment up to the present time that has been responsible for the individual learning basic behavioral repertoires (BBRs). The present environmental situation in which the individual finds himself or herself is depicted as S_2 . The individual's behavior, B, in that situation will be determined by the conditions of S_2 and the BBRs that the individual "brings" to that situation. B is a function of both S_1 and BBR in interaction. B represents overt behavior as well as the experience (emotional or ideational) the individual has and the learning that results. B can affect environmental conditions (e.g., the responses of others) that act on the individual and have the effect of producing additional development of the BBRs. Thus, there is a continuing interaction between B and the BBRs.

were unexpected in traditional theory (Staats & Burns, 1981). The PB theory of intelligence was not circular—intelligence consisted of explicit basic behavioral repertoires whose learning had been analyzed (Staats, 1990b). Moreover, the PB analyses provided the basis for manipulating (controlling) intelligence.

This is a new type of theory of personality (see Staats, 1993a, 1993c; Staats & Burns, 1992) that has been carried into other areas (see Staats & Burns, 1982; Staats et al., 1973). As schematized in Figure 1, S_1 stands for the individual's learning environment up to the present, and BBRs are the basic behavioral repertoires that have resulted; these constitute the individual's personality. S_2 stands for the current environmental situation. The individual's behavior (and experience and learning)—B in the figure—is a function of both S_2 and the BBRs.

This personality theory calls for study of each of these variables (S_1 , BBR, S_2 , and B) and their relationships (the behavior principles). Let me emphasize that behavior principles operate throughout, both in the learning of the BBRs and in their operation when the individual confronts the current situation. But explanation of the individual's behavior cannot be obtained only by knowledge of the current situation and behavior principles. Explanation requires knowledge of

the individual's BBRs. This framework theory involves stipulation of what personality is in a behavioral sense, how and by what principles it is formed, and how and by what principles it has its effects on behavior. Neither traditional psychology nor behaviorism has provided these essential developments. The PB framework theory, however, contains methodology and prototypical findings that provide that beginning specification. The approach calls for creation of research fields in developmental psychology to study the learning of the BBRs and in psychometrics to behaviorize the various personality instruments (see Fernandez-Ballesteros & Staats, 1992; Staats, 1975, 1986a, 1993a, 1993c; Staats & Fernandez-Ballesteros, 1987; Staats & Burns, 1981, 1982). Such behavioral analysis makes the fields explanatory and is basic for other fields that aim to change personality in order to change behavior. Broadly undertaking this agenda of development—the PB behavioral analysis of personality (the BBRs)—would make behaviorism important to psychology (see Staats, 1993a). An explanatory theory is also essential for applied behavior analysts and behavior therapists in order to provide tests with specifically manipulative possibilities instead of tests with only traditional uses (see Fernandez-Ballesteros & Staats, 1992; Haynes & O'Brien, 1990).

Abnormal Behavior Theory

The first behavioral taxonomy of abnormal behavior (Staats, 1963b, chap. 11) was presented in PB, and it played a heuristic role in the early fields of behavior modification and behavior assessment (see Goldfried, 1976; Goldfried & Sprafkin, 1974; O'Leary & Drabman, 1971; Silva, 1991). But that analysis was intended as a framework theory, to be developed in successive stages. The next PB theory of abnormal behavior employed research on the BBRs, plus analysis of personality tests in terms of the BBRs (Staats, 1975, chap. 8). This new framework was first schematized (Staats, 1979) without considering the biological aspects of abnormal behavior, as shown in

Figure 2. The model says that the individual's original environmental learning conditions, S_1 , may be deficient or inappropriate and thus produce (through learning) deficient or inappropriate basic behavioral repertoires in the individual. Those abnormal BBRs, in turn, will cause the individual's experience, learning, and behavior— B in the figure—to be deficient or inappropriate in the later situations that are encountered, S_2 . For example, a child with severe deficits in the BBRs of language (as in mental retardation) will behave differently and not experience things or learn like other children in situations that employ language. Also, the individual with severely inappropriate language BBRs (as in schizophrenia) cannot learn well, reason well, or communicate well with others and will behave in ways considered to be abnormal (see Staats, 1975, chap. 8). In addition to the BBRs, S_2 can also be deficient or inappropriate and, in interaction with the BBRs, produce abnormal behavior.

The PB conception has various heuristic implications. For example, there is a strong developmental perspective that calls for behavior analyses of the manner in which abnormal BBRs are learned. Behaviorism has not made this call (Eysenck, 1960; Lovaas, 1966), although treatment methods now involve training children in repertoires such as those specified in PB (Lovaas, 1977).

To continue, some S-O-R behavioral models of behavior problems have included a variable O , but without specifying what O consists of or what the relationship of O is to behavior (Goldfried & Sprafkin, 1974; Kanfer & Phillips, 1970). In contrast, PB's specificity requirement includes biological-behavioral stipulation (see Staats, 1963b, chap. 1; 1975, chap. 4 and 15). Very briefly, the position is that biological variables can play an important role in producing abnormal behavior at each of the sites of causation already described, as shown in Figure 3. At the time of original learning, abnormal biological conditions (O_1) can yield deficit or inappropriate BBR development. Down syndrome is an example of biological deficit that restricts learning of the BBRs. At a later time,

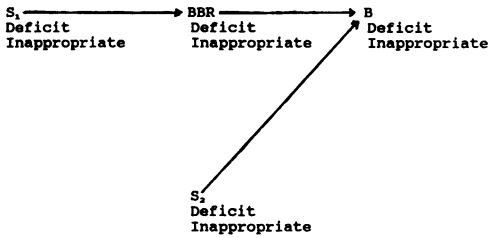


Figure 2. S_1 stands for the past environment. Deficient or inappropriate conditions in the environment will produce deficient or inappropriate BBRs in the individual, which will produce deficient or inappropriate behavior in the individual, even though environmental situations encountered later, S_2 , are normal. However, S_2 may also be deficient or inappropriate and produce deficient or inappropriate behavior in the individual, even though the individual's BBRs are normal. Deficient or inappropriate conditions in S_2 and the BBRs interact to produce abnormal (deficient or inappropriate) behavior.

after the BBRs have been learned, abnormal biological conditions (O_2) have a different effect, as when brain damage removes already learned BBRs. Finally, abnormal biological conditions acting at O_3 may also affect the way the individual can sense the present environment, as is the case when the individual loses visual or auditory acuity in old age. (O_1 , O_2 , or O_3 effects can involve conditions that are temporary, as is the case with drug use, as well as permanent.) Again, this PB model makes more explicit the ways and times in which biological variables can, in a behavioral manner, produce abnormal behavior. An analytic basis for unifying and researching biological and behavioral variables is established that has treatment (manipulative) directives (see Fernandez-Ballesteros & Staats, 1992; Staats, 1989, 1990a, 1993a).

As indicated, the PB theory of abnormal behavior, as a framework theory, was set forth in an early version (Staats, 1963b, chap. 11) and advanced later on (Staats, 1975, chap. 8). The behavior disorders exemplified were not treated in detail, but the PB program calls for such analysis in the form of specialized theories. The first specialized theory—other than PB's theory of dyslexia (see Burns & Kondrick, 1992; Leduc, 1984, 1988; Staats, 1975, chap. 11; Staats & Butterfield, 1965)—deals with depression

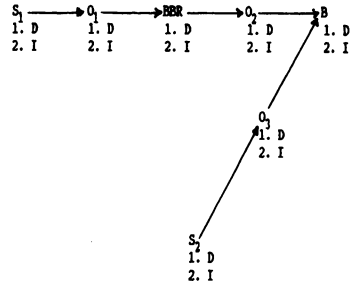


Figure 3. Organic conditions are introduced at each site of causation. S_1 , BBR, or S_2 may be deficient (D) or inappropriate (I). But even when they are normal, organic conditions may be deficient or inappropriate for the individual during original learning (S_1), which will result in the BBRs being deficient or inappropriate. Moreover, even though the BBRs are normal, organic conditions at a later time, O_2 , may be deficient or inappropriate, which will make the individual's behavior, B, deficient or inappropriate. Moreover, deficient or inappropriate organic conditions may make the individual unable to perceive (sense) a later environment, S_2 , normally and thus may produce deficient or inappropriate behavior.

(Staats & Heiby, 1985). This theory already serves as the foundation for an extensive series of research studies, especially by Elaine Heiby (see Heiby, 1986) and others (Rose & Staats, 1988). Theories of other behavior disorders have already been drafted (see Staats, 1989) as part of filling in the skeleton of the theory of abnormal behavior. For example, the PB theory of anxiety disorders analyzes individual disorders, indicates their commonalities and differences, and introduces new principles in the process. Disseminated in 1989, this particular theory is already being systematically researched by Leonard Burns (see Sternberger & Burns, 1991) and extended in more detailed treatments of the specific anxiety disorders that include the general literature in the field (see Eifert, Evans, & McKendrick, 1990). The PB theory of abnormal behavior (Staats, 1989) illustrates how framework theory develops and the heuristic effects it has.

PARADIGMATIC BEHAVIORAL THERAPY

One of the PB's earliest concerns involved the analysis and treatment of problems of behavior (Staats, 1957),

which included principles that became basic in early behavior modification. This interest led to PB's analysis and treatment of nonreading in children (see Staats & Butterfield, 1965; Staats et al., 1964; Staats, Staats, Schutz, & Wolf, 1962), which introduced the token-reinforcer system and behavioral study of developmental disabilities (see O'Leary & Drabman, 1971). However, the PB approach was that the application of the basic conditioning principles does not exhaust the possibilities for behavioral application. For example, one PB analysis (Staats, 1972) aimed at removing the resistance to verbal psychotherapy, because PB's theory of language showed that behavior could be changed via language. (Hamilton, 1988, later came to a similar view, within RB.) Let me now add that use and development of this PB analysis could improve on cognitive behavioral therapy. PB has various implications for new directions in clinical research and practice (see Eifert & Evans, 1990; Fernandez-Ballesteros & Staats, 1992).

UNIFYING AND BEHAVIORIZING

The preceding sections characterize the multilevel theory and method of PB. By adding to the basic conditioning principles progressively, over the various levels of study, it is possible to construct a framework that is fully behavioristic. Yet the added developments provide the means by which to analyze complex human behavior in ways not possible using only basic conditioning principles. And the multilevel framework makes it possible to deal with important concepts, findings, and methods within psychology.

The PB position is that behaviorism's goal should not be to replace or defeat psychology; the program should be that of behaviorizing psychology. Behaviorizing analyses build and elaborate behaviorism as well as psychology. Moreover, behaviorized works are unified and will turn psychology into a unified, more powerful science, in a way cognitivism cannot. Behaviorism can in this way become the way of psychology—Watson's

original goal. Behaviorism has this potential. But first it must select the framework to guide the many works involved. PB has been constructed for that purpose. That framework calls for new directions of research—empirical, theoretical (and scholarly), philosophical, and methodological. We suggest that the future of behaviorism lies in this blueprint for development, as does psychology's advancement as a science.

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